

**FINDING OF NO SIGNIFICANT IMPACT
FOR THE
IMPLEMENTATION OF A SOILS MONITORING STUDY
LAKE MEAD NATIONAL RECREATION AREA**

INTRODUCTION

The National Park Service (NPS), Lake Mead National Recreation Area (NRA), has prepared an environmental assessment (EA) that evaluates the no-action and one action alternative related to the soils monitoring study, "Monitoring Protocols for Soil Stability at Lake Mead National Recreation Area" proposed by the United States Department of Agriculture, Jornada Experimental Range (USDA), New Mexico State University.

Lake Mead NRA is located in southeastern Nevada and northwestern Arizona. The proposed study plots are located at twelve locations within the Nevada portion of Lake Mead NRA. Table 1 provides more specific information regarding the proposed treatment locations and the soils present at each location.

Table 1. Proposed Treatment Locations

Priority	Site Name	Approximate Location	Soil Series	Slope (%)
1	Tamarisk Road	0.5 km E of Powerline Road on Tamarisk Road	Carrizo	3-5
1	Blue Point Bay Spring Road	0.5 km SE of Blue Pt. Bay Spring on Blue Pt. Bay Road	Drygyp	5
1	Callville Wash Road North	5 km N or AR101 on Callville Wash Road #94	Heleweiser	2-3
2	Airport Flat	Immediately north of airport	Cheme	4-6
2	Callville Wash	Near old Callville Wash Road, on south side of AR101	Gypwash	1-3
2	Cottonwood Cove	Just east of Cottonwood Cove NPS housing site	Huevi	2-3
3	Mid-Basin Road	0.6 km E of Powerline Road on Mid-Basin Road	Carrizo	3-5
3	Airport Gravel Pit	North of airport immediately west of gravel pit	Cheme	15-20

3	Blue Point Bay Spring Powerline	1 km N of Blue Pt. Bay Spring on Powerline Road	Drygyp	10-15
3	Old Dump	At old dump site, 1 km S of Lakeshore Road	Gypwash	5-8
3	Bittersprings Road	0.5 km N of AR101, 200 m E of Bittersprings Road	Heleweiser	5-8
3	Closed Lakeshore Drive	On close Lakeshore Drive, 1 km N of southern gate	Huevi	15-20

PURPOSE AND NEED

In 1998, a vital signs monitoring workshop was conducted at Lake Mead NRA. Approximately 55 interdisciplinary scientists were asked to list the most significant threats or stressors to the environment within Lake Mead NRA. They then were asked to provide their professional judgement on the key indicators of ecosystem health that the NPS should monitor related to those environmental stressors. The number one recommended parameter for Lake Mead NRA to monitor related to ecosystem health and sustainability was the condition of desert soils and ground disturbances.

In order to initiate the number one recommended monitoring protocol development from the vital signs workshop, Lake Mead NRA requested the assistance of the USDA to conduct a preliminary battery of soils measurements. The objective was to develop initial information that could guide later development of a soils monitoring protocol. During 2000 and 2001 the USDA Jornada Experimental Range Station took soils measurements within areas of existing disturbances related to burro grazing and illegal off-road vehicle tracks. The purpose of these measurements was to evaluate the use of soils indicators related to such disturbances developed in other locations for their potential use as indicators within Lake Mead NRA. These included: soil stability, chlorophyll content (a microbiotic crust indicator), penetrometer resistance, and gravel cover. These measurements were taken at over 30 locations containing existing soil disturbance. Also completed was a soils particle size analyses for each location and consultations with the Natural Resource Conservation Service soil scientist who completed the order 3 soils map of Lake Mead NRA in 1999.

The initial results provided information on both the resource impacts of illegal off-road traffic and burros, and on the relevance of possible indicators of overall soils condition. The results from initial measurements also provided some indication of the relative sensitivity of different soils to disturbance.

Initial measurements show that tracks from illegal off-road vehicle use and the establishment of burro trails increased soil compaction and soil erodibility and decreased microbiotic crust density. Significantly higher penetrometer resistance and higher soil

erodibility in the tracks strongly suggest that the hydrologic function is impaired, especially during extreme storm events producing large amounts of runoff. It is these events which generate and deliver most of the sediment in arid ecosystems such as Lake Mead NRA, and which cause the most damage to both the land and infrastructure, including the wash out of roads.

While it has been shown that the creation of off-road trails impacts increased runoff in more mesic (wetter) ecosystems, there is limited data documenting hydrologic effects for areas similar to Lake Mead NRA. Consequently, there is a management need to evaluate the relative hydrologic and erosion impacts of these activities on different types of soils within Lake Mead NRA.

Controlled, replicated studies of soils responses to creation of illegal off-road trails and burro trails are needed to quantify the short-term and long-term effects of these disturbances on hydrologic runoff and soil susceptibility to erosion for each of the major soil types at Lake Mead NRA. This proposed study will focus on indicator measurements of illegal vehicle tracks and burro trails, and conduct a replicated study of soil indicator responses to the creation of illegal vehicle tracks. The results of this study will be used for park management in the planning and location of new roads, in better maintenance and management of the existing backcountry approved roads system, and to focus efforts for the management of illegal off-road vehicle use by targeting the most sensitive soils for special protection. Additionally, results from this study will be used by park management for overall soils condition assessments, and for the development and prioritization of restoration actions of past burro use and illegal vehicle tracks.

ALTERNATIVE CONSIDERED

The alternatives analyzed included: Alternative A: No Action and Alternative B: Implement the Soils Monitoring Program (management-preferred alternative). There were no other alternatives considered for this project.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

An alternative must meet the following criteria to be considered an environmentally preferred alternative:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;
3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
5. Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Alternative B is the environmentally preferable alternative because overall it will best meet the requirements in Section 101 of NEPA. It will provide for the protection and preservation of the natural resources, including the Mojave Desert ecosystem. It will provide information to park managers to make better decisions and set priorities for the protection of the recreation area resources, and fulfill the responsibilities of trustee for future generations.

MITIGATION AND MONITORING METHODS

Mitigation measures are specific actions designed to minimize, reduce, or eliminate impacts of alternatives and to protect Lake Mead NRA resources and visitors.

Monitoring activities are actions to be implemented during or following the project. The following mitigation related to the soils monitoring study will be implemented under the preferred alternative, and were assumed in the analysis of effects for each alternative.

Natural Resources

Soils and Vegetation: Any tracks to the project site will be eradicated after the initial study. Monitoring will be done to assess site recovery. After the conclusion of the project, the project lead will reestablish the site contour, rake any tracks, and refill holes to leave the terrain similar to the surrounding area. The project manager will record any vegetation that is removed as part of the project, and this vegetation will be replaced after project completion.

Special Status Species: Even though sites were selected to avoid areas where sensitive, threatened, and endangered species occur, they will be surveyed again by NPS biologists prior to initiating any action. The only species of concern in the proposed site areas is the desert tortoise. Desert tortoise training will be provided to all individuals involved with this project. If desert tortoise or burrows are found in the study sites, the site locations will be slightly modified to avoid any impact to these species.

Air Quality: The project manager will avoid windy days when conducting the study to prevent localized dust from blowing into other areas.

Cultural Resources

All study plots and access routes will be inventoried for cultural resources by a qualified NPS staff archeologist. Should unknown cultural resources be uncovered during monitoring, testing will be halted in the discovery area and the monitoring plot will be relocated to avoid any impacts to cultural resources. Lake Mead NRA staff will consult according to 36 CFR 800.11 and, as appropriate, provisions of the Native American Graves Protection and Repatriation Act of 1990.

The NPS has consulted with appropriate Native American groups as required by the various laws, regulations, and executive orders. The Lake Mead NRA staff will notify and consult concerned tribal representatives for the proper treatment of human remains, funerary, and sacred objects, should these be discovered during the course of this monitoring project.

The following matrix summarizes the mitigation measures required for the Preferred Alternative.

Impact Topic	Mitigation Required under the Preferred Alternative (Alternative B)	Responsible Party
Soils and Vegetation	Tracks will be eradicated after initial study. After the conclusion of the study, the site will be rehabilitated.	Study Lead and Resource Compliance Monitor
Wildlife, Wildlife Habitat and Sensitive Species	Desert tortoise education will be required for all study participants. Desert tortoise and burrows will be avoided.	Resource Compliance Monitor
Air Quality	The project manager will avoid windy days when conducting the study to prevent localized dust from blowing into other areas.	Study Lead
Cultural Resources	All study plots and access routes will be inventoried for cultural resources by a qualified NPS staff archeologist. Should unknown cultural resources be uncovered during monitoring, testing will be halted in the discovery area and the monitoring plot will be relocated to avoid any impacts to cultural resources. Lake Mead NRA staff will consult according to 36 CFR 800.11 and, as appropriate, provisions of the Native American Graves Protection and Repatriation Act of 1990.	Cultural Resource Specialist

ENVIRONMENTAL CONSEQUENCES OF THE PREFERRED ALTERNATIVE

Following the implementation of the mitigation and monitoring measures, the environmental consequences of implementing the Preferred Alternative are as follows:

Soils and Vegetation

No more than twelve study plots will be established under alternative B. At each site, all disturbance would be confined to an area of 50 by 100 meters (0.5 ha). Replicate vehicle tracks will be 20 meters long, totaling 160 meters of tracks at each site. With turning radius included, each site will impact a total of 250 square meters. Up to 24 small excavations could occur on each site, impacting an additional 24 square meters (0.0024 ha). Three soil cores will be removed from each control site, impacting 0.14 square meters (0.000014 ha).

Some vegetation will be removed from the study sites, and some may be crushed by the study, and would likely recover in the long-term. Mitigation will prevent this alternative from creating more than a minor impact to vegetation and soils.

Cumulative Effects: Study results could yield recovery information that enables park managers to make more informed decisions and set priority areas for the protection of the soils within the recreation area. This could lead to better management and protection of the park resources.

Conclusion: The soils monitoring study will have a negligible to minor impact on soils in the recreation area because even though the impacts are measurable or perceptible, they will occur in a localized, relatively small area. The overall soil structure will not be affected. The soils monitoring study will have a negligible to minor impact on vegetation. There will be only slight measurable or perceptible impacts to vegetation, localized in a relatively small area. The overall viability of the plant community will not be affected and, if left alone, will recover. There will be no impairment to soils and vegetation as a result of this alternative.

Wildlife

Wildlife could be disturbed during the study activities, and they could be temporarily displaced from the project areas.

Cumulative Effects: There will be no cumulative effects to wildlife.

Conclusion: Wildlife will be temporarily displaced from the study area. Overall, these impacts will be negligible as no species of concern is present; and impacts with only temporary effects are expected. There will be no impairment to wildlife as a result of the impacts associated with this alternative.

Air Quality

Dust from the use of dirt roads and from the study itself will be visible during the project. This will occur only during the work period, and would be localized, therefore it will be a minor impact.

Cumulative Effects: No cumulative effects to air quality will occur as a result of implementing this alternative.

Conclusion: There will be minor, short-term localized impacts to air quality around the project site during the work periods. There will be no impairment to air quality as a result of the impacts associated with this alternative.

Cultural Resources

The study plots and access routes will be inventoried for cultural resources. If any cultural resources are located they will be avoided, therefore, there will be no effect to cultural resources.

Cumulative Effects: There will be no cumulative effects to cultural resources.

Conclusion: No effect, no impairment.

PUBLIC INVOLVEMENT

A press release was provided to area newspapers announcing the 15-day scoping period on August 16, 2002. No issues were raised during this scoping period.

A 30-day public comment period for public review of the EA commenced on December 18, 2002. Public notice of the availability of the EA was published on the park's website, and the EA was circulated to individuals, businesses, and organizations, on the recreation area's mailing list and to all area libraries. In addition, an electronic version of the EA was available on the park's website. Individuals and organizations could also request the EA in writing and by telephone. Various federal and state resource agencies, Native American tribes, and members of the public were invited to review the EA. Approximately 75 copies of the EA were distributed for public review.

Three comment letters were received on the EA during the 30-day comment period that extended from December 18, 2002 through January 16, 2003. Two comments letters from the State of Nevada, including the Historic Preservation Office and the Nevada Division of Wildlife. The Historic Preservation Office supported the project as written. The Nevada Division of Wildlife recommended evaluating additional impacts, such as foot traffic and mountain bike trails. One comment letter was submitted by an individual, and asked questions relating to the soils monitoring study. None of the comments received raised substantive issues not already addressed in the EA, and some comments were beyond the scope of analysis, however the park and USDA project manager will respond separately as appropriate.

CONSULTATIONS AND PERMITTING

A NPS collection permit is required and will be obtained prior to the soils monitoring project.

The NPS has consulted with appropriate Native American groups as required by the various laws, regulations, and executive orders. The Lake Mead NRA staff will notify and consult concerned tribal representatives for the proper treatment of human remains, funerary, and sacred objects, should these be discovered during the course of this monitoring project.

BASIS FOR DECISION

The National Park Service selects alternative B because it will allow a meaningful assessment of overall soil conditions related to disturbance. The selected alternative will allow controlled, replicated studies that will quantify the short-term and long-term effects on soil compaction and the susceptibility of the soil to erosion from illegal off-road vehicle traffic, burro trails, and similar disturbances for each of the major soil types at Lake Mead NRA. The study will also help indicate which soil types are the most vulnerable to erosion from disturbances.

IMPAIRMENT OF PARK RESOURCES OR VALUES

The effects of the preferred alternative will not impair park resources or values necessary to fulfill specific purposes identified in the park's enabling legislation. Impacts

documented in the EA and summarized above will not affect resources or values key to the natural and cultural integrity of the park or alter opportunities for enjoyment of the park. The preferred alternative will not impair park resources and will not violate the NPS Organic Act. This conclusion is based on a thorough analysis of the impacts described in the environmental assessment, the agency and public comments received, and the professional judgment of the decision-maker in accordance with National Park Service *Management Policies*, 2001.

CONCLUSION AND BASIS FOR DETERMINATION

Based on the analysis completed in the EA, the capability of the mitigation measures to reduce, avoid, or eliminate impacts, and with due consideration of public response, the NPS determined that there are no cumulative, indirect effects, or connected actions with the potential for significant impacts. Therefore, an environmental impact statement is not required, and the selected action may be implemented as soon as practical.

I find that the preferred alternative does not constitute a major federal action significantly affecting the quality of the human environment. Therefore, in accordance with the National Environmental Policy Act of 1969 and regulations of the Council on Environmental Quality (40 Code of Federal Regulations 1508.9), an environmental impact statement will not be prepared for this project.

Recommended:

William K. Dickinson, Superintendent
Lake Mead National Recreation Area

Date

Approved:

Jonathan B. Jarvis
Regional Director, Pacific West Region

Date

COMMENT LETTER 1

01/14/2003 17:04 NEVADA DIVISION OF WILDLIFE + 917756840260 NO. 255 0001

NEVADA STATE CLEARINGHOUSE

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Nevada SAI # E2003-063

Project: EA for Implementation of a Soils Monitoring Study for Lake Mead National Recreation Area

☐ Yes ☐ No Send more information on this project as it becomes available.

CLEARINGHOUSE NOTES:

Enclosed, for your review and comment, is a copy of the above mentioned project. Please evaluate it with respect to its effect on your plans and programs; the importance of its contribution to state and/or local areawide goals and objectives; and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than January 14, 2003. Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAI number and comment due date for our reference. Questions? Heather Elliott, 684-0209.

THIS SECTION TO BE COMPLETED BY REVIEW AGENCY:

☐ No comment on this project
☐ Proposal supported as written
☒ Additional information below

☐ Conference desired (See below)
☐ Conditional support (See below)
☐ Disapproval (Explain below)

AGENCY COMMENTS:

Comment 1

The Nevada Division of Wildlife supports the National Park Service's effort to better understand soils and the environment of the Lake Mead National Recreation Area (NRA). While we encourage the proposed soils study (SAI # E2003-063), we would caution that the study justification is somewhat overstated. Its focus is also narrow regarding the broad array of soil disturbance factors and causative activities on the NRA. The Division suggests that the study evaluate other additional impacts, such as foot traffic and mountain bike trails. The latter activity is notorious in the Las Vegas area for usurping horse and burro trails, as well as wildcatting trails without regard for the resources.

Thank you for soliciting our comments. Please do not hesitate to contact our personnel if they can provide information to complement this work

Signature  crjohn@clearclear.nv.gov

NDOW-SR
Agency

1/4/03
Date

RESPONSE TO COMMENT LETTER 1

(1). We agree that there is a broad array of soil disturbance factors and causative activities on the recreation area. Unfortunately, at this time, funding is limited to studying what is considered the most common type of mechanized off-road disturbance at Lake Mead. In the future, if funding becomes available, other additional impacts will be considered for evaluation.

COMMENT LETTER 2

Nancy, here are the brief comment notes:

COMMENTS ON "EA" FOR SOILS MONITORING STUDY, LMNRA--12/02

Reference page 17 on soils monitoring program for "tracking".

1. Since vehicular tracking is targeted, testing should include all probably types of ORV that have made tracks in the desert soils. Tests should include the following: motorcycles, dirt bikes, Quads especially, jeep, 4X4 pickup, SW.

2. Tire lug patterns/treads differ widely from street tires (unlikely) to very aggressive heavy lugs. A variety should be examined.

3. The width of tire tracks vary also from single with a bike to a Quad to the widest of a 4X4 pickup(unless you have a HUMVEE). Not all tracks are in the same groove so to speak so there is an enlarged area of contact and therefor a larger area of erosion potential and exposure.

4. Each type vehicle has different wheel spacing (side to side), turning radius, traction and acceleration characteristics to be considered.

5. With tracking both floatation and imprinting should be examined.

6. The differences of vehicular size and weight v.s. relative bearing surface area of the tires should also be considered.

7. (a) It has been my experience that compacted tracks on flat areas contribute less to wind erosion and water erosion than loose areas of tracking disturbed by aggressive tires on hillslopes or uneven topography. However the reverse is true for infiltration and percolation. If in blow sand, then there may be little difference.

(b) If this is to be a scientific study, then the vehicles and their tires that are producing the impacts

should **all be examined** because each has no doubt a different type of signature impact.

(c) The operators of ORV's who pioneer it or challenge the desert/hills are either 1. uneducated as to the consequences of their actions, 2. stupid, 3. uncaring and unthinking, 4. under the influence, or 5. taking out their frustrations or showing off by abusing their vehicles and the land over which they travel.

(d) This type of study can be helpful for management if the information derived is applicable to the theme of the study. Ultimately, it could contribute to water quality protection efforts by LMNRA.

Icyl Mulligan, January 8, 2003

RESPONSES TO COMMENT LETTER 2

(1) The study was unable to be funded at a level to do testing on all types of ORV that make tracks in desert soils. Jeeps were selected for the study because they represent the most common type of mechanized off-road disturbance at Lake Mead.

(2) We agree that tires differ widely. However, funding prohibits conducting tests using a variety of tires. Therefore, as stated under (1), the study will use tires from the most common type of mechanized off-road disturbance at Lake Mead.

(3) Please see (1) and (2).

(4) Please see (1) and (2). Wheel spacing was addressed in a previous study by making some measurements at different distances from the tracks.

(5) The combined effect of these processes on infiltration, soil erodibility and runoff will be examined. There are insufficient resources available to attempt to separate floatation and imprinting.

(6) Please see #1. We will document these characteristics, and refer to published literature to predict effects of different size, weight and tire pressure (which determines bearing surface area) to extend the results to other vehicles.

(7.a) These are accurate observations. This project will allow us to test some of these hypotheses.

(7.b) We will describe the characteristics of the vehicle used in the study, as suggested.

(7.c) This is an observation on the nature of the drivers. This study is not designed address these points.

(7.d) This statement supports the objectives of the study.